

## **GNDN False Solutions Memo Summer 2024**

**Memo:** Analysis of False Solutions in Clean Technologies and Their Impacts on Environmental Justice Communities

*This memo was developed by the Green New Deal Network in 2024 as an internal and coalition-facing analysis of commonly promoted “false solutions” in climate policy. It is shared here as a historical and educational resource to support ongoing conversations about environmental justice, emissions reduction, and public investment.*

### **Overview**

As the movement for a Green New Deal has pushed for major public investment in clean technologies, it has been critical to assess proposals marketed as “clean” that may carry significant environmental justice risks or deliver overstated emissions benefits.

This memo reviews several technologies frequently criticized as “false solutions,” examining their potential impacts on Environmental Justice (EJ) communities, critiques of their emissions-reduction claims, and the scale of current federal funding supporting their deployment.

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## **Carbon Capture and Storage (CCS)**

### **Definition**

CCS is a technology that captures carbon dioxide (CO<sub>2</sub>) emissions from sources such as power plants and industrial processes, and stores them underground or in other storage facilities to prevent them from entering the atmosphere. **Source:** *National Energy Technology Laboratory (NETL). “Carbon Capture and Storage (CCS).” U.S. Department of Energy.*

### **Potential Risks to EJ Communities**

CCS facilities are often located near industrial areas, often within or adjacent to EJ communities. This can increase the pollution burden and risk of CO<sub>2</sub> leaks, potentially endangering local residents' health.

### **Critiques Regarding Net Emissions Reductions**

[Critics](#), including Earthjustice, have noted that much captured carbon is used for enhanced oil recovery, undermining claimed climate benefits and extending fossil fuel dependence. *“The vast majority of the captured carbon is currently used for enhanced oil recovery, canceling out much of the supposed climate benefits and further entrenching our reliance on dirty fuels.”*

### **Federal Funding**

- **Inflation Reduction Act (IRA):** Expands the 45Q tax credit for CCS, offering up to \$85 per ton of CO<sub>2</sub> stored and funding research and development.
- **Bipartisan Infrastructure Law (BIL):** Allocates \$3.5 billion for regional direct air capture (DAC) hubs and funding for carbon transportation and storage infrastructure.

## Hydrogen Production

### Definition

Hydrogen is a combustible fuel that produces only water, not CO2. Hydrogen is graded by different colors depending on how polluting it is; it requires an electrolyzer, which runs on electricity:

- **Grey:** produced via natural gas (methane), releasing CO2
- **Blue:** grey hydrogen with carbon capture (CO2 buried)
- **Pink:** Nuclear power generates hydrogen
- **Turquoise:** removes the carbon in natural gas in solid form - “pre-combustion carbon capture.”
- **Green:** uses renewables to split water into hydrogen and oxygen

### Potential Risks to EJ Communities

- "Blue hydrogen," produced from natural gas, involves significant methane emissions, a potent greenhouse gas that can worsen air quality in EJ communities.
- Large-scale hydrogen production requires substantial water resources, which could strain water supplies in regions already facing scarcity and disproportionately affect EJ communities.

### Critiques Regarding Net Emissions Reductions

- The production of blue hydrogen could yield net emissions reductions that are lower than anticipated due to methane leakage, making it less effective than truly green hydrogen produced from renewable energy.
- *“If you used the average grid electricity to produce hydrogen today, the process would release about twice the emissions of conventional hydrogen production.”* (Source: [Grist](#)) Challenge: electrolyzers are expensive, and can't run on renewables 24/7
- Green hydrogen will likely only be economically feasible in the 2030's-2040s -- too late for the energy transition we need. Hydrogen for transportation fuel would require several hundred million dollars in infrastructure upgrades. In some cases, large-scale investment in hydrogen may divert attention and resources from proven, near-term climate solutions. (Source: [The Equity Fund & Just Solutions Collective](#))

### Federal Funding

- **Inflation Reduction Act (IRA):** Introduces the 45V tax credit for clean hydrogen production, which can benefit both blue and green hydrogen, depending on the carbon intensity.
- **Bipartisan Infrastructure Law (BIL):** Allocates \$8 billion for regional clean hydrogen hubs and additional funding for hydrogen research and development.

### Other Resources

- [The Hydrogen EJ Framework – Just Solutions](#)

## Corn Ethanol

### Definition

Corn ethanol is a biofuel produced from the fermentation of corn. It is often blended with gasoline to reduce carbon emissions, but its production can have significant environmental and social impacts. (**Source:** U.S. Department of Agriculture (USDA). "The Impacts of Ethanol Production on Food Prices and Greenhouse-Gas Emissions." 2008.)

### Potential Risks to EJ Communities

- The production of corn ethanol involves intensive agricultural practices that can increase pollution, particularly affecting rural EJ communities.
- Growing corn for ethanol increases the use of nitrogen-based fertilizers and pesticides, which contribute to biodiversity loss and contaminate water sources, affecting nearby communities.
- Diverting corn for ethanol production can raise food prices, disproportionately impacting low-income communities.
- Corn ethanol subsidies tend to benefit large agribusinesses rather than small farmers, further consolidating farmland and marginalizing smallholder and minority farmers.
- Ethanol refineries themselves can emit hazardous air pollutants, including volatile organic compounds (VOCs) and particulate matter, contributing to elevated asthma and respiratory risks in nearby communities—many of which are rural, low-income, and have limited access to regulatory enforcement or health care.

### Critiques Regarding Net Emissions Reductions

Critics argue that, across the entire lifecycle of corn ethanol—from cultivation to combustion—the net emissions reductions are minimal, if not negative, due to land-use changes and associated emissions. “The Renewable Fuel Standard promised to pay farmers to fight climate change and boost U.S. energy independence. Instead, a new five-year study of its impact on land use suggests it led to increased fertilizer use, water pollution, and likely at least 24 percent more emissions than gasoline.” (**Source:** [Environmental Outcomes of Renewable Fuel Standard](#))

### Federal Funding

- **Inflation Reduction Act (IRA):** Continues support for biofuels, including corn ethanol, through tax credits and incentives.
- **Bipartisan Infrastructure Law (BIL):** Funds the expansion of biofuel infrastructure, potentially supporting increased corn ethanol production.

## Biomass Energy

### Definition

Biomass energy is produced by burning organic materials such as wood, agricultural residues, or waste to generate electricity or heat. It is considered renewable, but its carbon neutrality and sustainability are debated. (**Source:** Biomass Energy Center. "What is Biomass?" U.K. Forestry Commission.)

### Potential Risks to EJ Communities

- Burning biomass emits pollutants such as particulate matter, potentially harming air quality in EJ communities near biomass facilities.
- The demand for biomass can lead to deforestation and land-use changes, disrupting ecosystems and harming indigenous and rural EJ communities.

### Critiques Regarding Net Emissions Reductions

While biomass is often labeled as "carbon neutral," critics argue that this is misleading. The carbon released during combustion is not immediately reabsorbed, and land-use changes associated with biomass production can lead to significant emissions. (**Source:** [CBD](#))

### Federal Funding

- **Inflation Reduction Act (IRA):** Includes tax credits and incentives for renewable energy, including biomass projects.
- **Bipartisan Infrastructure Law (BIL):** Provides funding for renewable energy projects, including biomass, especially in rural areas.

## Nuclear Energy

### Definition

Nuclear energy is generated through nuclear reactions, primarily fission, where uranium atoms are split to produce heat, which is then used to generate electricity. It is a low-carbon energy source but poses risks related to radioactive waste and potential accidents. (**Source:** World Nuclear Association. "What is Nuclear Energy?" 2022.)

### Potential Risks to EJ Communities

- EJ communities located near nuclear plants or waste storage sites face significant risks from radioactive waste, which can have long-term environmental and health impacts.
- The potential for nuclear accidents, though rare, poses a severe threat to surrounding communities, often disproportionately impacting EJ communities.

### Critiques Regarding Net Emissions Reductions

While nuclear energy has low operational emissions, its high costs, long construction lead times, and unresolved waste disposal issues raise concerns about its role in rapidly achieving net emissions reductions.

### Federal Funding

- **Inflation Reduction Act (IRA):** Offers production tax credits for existing nuclear power plants and funding for advanced nuclear reactors.
- **Bipartisan Infrastructure Law (BIL):** Allocates funds for the research and development of advanced reactors and for the maintenance of existing facilities.
- **CHIPS and Science Act:** Supports research into advanced nuclear technologies, including small modular reactors (SMRs).

## Large-Scale Hydropower

### Definition

Large-scale hydropower generates electricity using the gravitational potential energy of falling or flowing water, typically from large dams. While renewable, it can have significant environmental and social impacts, including displacement and ecosystem disruption. (**Source:** International Hydropower Association (IHA). "Hydropower Basics." 2021.)

### Potential Risks to EJ Communities

- The construction of large dams often displaces communities, particularly indigenous and low-income populations, leading to loss of homes and livelihoods.
- Dams disrupt local ecosystems, affecting fishing and agriculture, which are vital for many EJ communities.

### Critiques Regarding Net Emissions Reductions

Large reservoirs created by dams can emit methane, a potent greenhouse gas, which may offset the emissions reductions achieved by hydropower.

### Federal Funding

- **Bipartisan Infrastructure Law (BIL):** Provides funding for the rehabilitation and enhancement of hydropower infrastructure, including dam safety and efficiency upgrades.

## Waste-to-Energy/Incineration

### Definition

Waste-to-energy is the process of generating electricity or heat from the incineration of waste. It is often criticized for emitting harmful pollutants and for having limited net emissions benefits relative to other waste management strategies. (**Source:** U.S. Environmental Protection Agency (EPA). "Energy Recovery from the Combustion of Municipal Solid Waste (MSW)." 2022.)

### Potential Risks to EJ Communities

- Incineration releases toxic pollutants such as dioxins, mercury, and particulate matter, which can significantly degrade air quality in nearby EJ communities.
- The toxic ash produced can contaminate soil and groundwater, further impacting EJ communities.

### Critiques Regarding Net Emissions Reductions

Waste-to-energy is often criticized for delivering limited net emissions reductions, particularly compared with recycling and waste-reduction strategies. The carbon emissions from burning waste may not be fully offset by the energy produced.

### Federal Funding

- **Bipartisan Infrastructure Law (BIL):** Includes funding for waste management infrastructure, which can support waste-to-energy projects as part of broader waste management strategies.

## Geoengineering

### Definition

Geoengineering refers to large-scale interventions in the Earth's climate system aimed at reducing global warming, such as solar radiation management or carbon dioxide removal. These methods are controversial due to potential unintended consequences and ethical concerns. (**Source:** National Academy of Sciences. "Climate Intervention: Reflecting Sunlight to Cool Earth." 2015.)

### Potential Risks to EJ Communities

- Geoengineering could lead to unpredictable side effects, including changes in weather patterns, that disproportionately affect vulnerable regions, particularly in the Global South.
- The deployment of geoengineering technologies without proper governance can impose risks on EJ communities without their consent.

### Critiques Regarding Net Emissions Reductions

Geoengineering might be used as an excuse to delay meaningful reductions in greenhouse gas emissions, leading to continued reliance on fossil fuels and inadequate action on climate change.

### Federal Funding

- **CHIPS and Science Act:** Supports research in advanced climate technologies, which could include geoengineering.
- **Inflation Reduction Act (IRA):** Supports carbon dioxide removal (CDR) technologies, such as direct air capture (DAC), which are part of geoengineering strategies.

## Cap and Trade/Carbon Markets

### Definition

Cap and trade is a market-based system where a limit (cap) is set on total emissions, and companies can buy and sell (trade) permits to emit CO<sub>2</sub>. It is designed to reduce emissions cost-effectively but can create pollution hotspots and may not always achieve significant net reductions. (**Source:** U.S. Environmental Protection Agency (EPA). "Cap and Trade: Essentials." 2022.)

### Potential Risks to EJ Communities:

- Cap-and-trade systems can create localized pollution hotspots if companies opt to buy allowances rather than reduce emissions, resulting in concentrated pollution in EJ communities.
- Wealthier companies may buy credits, while poorer communities continue to suffer from pollution without seeing direct benefits.

### Critiques Regarding Net Emissions Reductions

Critics argue that cap-and-trade systems can be inefficient, with the potential for emissions leakage, where reductions in one area are offset by increases elsewhere, resulting in minimal net emissions reductions.

### Federal Funding

- **Inflation Reduction Act (IRA):** Supports market-based solutions and carbon credit generation, particularly in agriculture and forestry.
- **Bipartisan Infrastructure Law (BIL):** Funds programs encouraging market-based climate approaches, including carbon offset programs.

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*The technologies reviewed here are often marketed as climate solutions, yet many pose significant environmental justice risks or have uncertain emissions benefits. This memo does not argue that all research or deployment should cease; rather, it calls for public investment to be evaluated through the lens of equity, urgency, and proven impact. As climate policy continues to evolve, centering frontline communities and prioritizing solutions that deliver real, near-term emissions reductions remains essential.*